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# FOOD POISONING

and the

LAW



Washington

U. S. Department of Agriculture

Food and Drug Administration

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## FOOD POISONING AND THE LAW

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The words "food poisoning," to the average citizen, cover a multitude of ailments, all the way from overeating to disappointment in love, judging by the many false reports of such poisoning that from time to time send food officials off on wild goose chases. An outbreak of true food poisoning can bring in its wake so much grief that no faint suspicion that tainted food is loose in the land can be ignored by those whose duty it is to preserve the purity of America's food supply. And so the instant a complaint of symptoms ascribed, rightly or wrongly, to food poisoning is received, the Food and Drug Administration takes steps to ascertain the cause and, if contaminated or infected food is responsible, to make sure that no more lots of the same food are sold. This action is taken under the Federal food and drugs act, popularly known as the pure food law, which, among other things, forbids traffic in any food that is adulterated because of added deleterious ingredients or because it is filthy, putrid, or decomposed. The law applies to foods shipped in interstate commerce, manufactured, sold, or offered for sale in the District of Columbia or any of the territories, or imported into or exported from the United States.

Products capable of causing food poisoning that receive special attention under the pure food law may be grouped into three general classes: (1) Those that contain added poisonous substances, like arsenic or lead; (2) those that harbor disease germs, such as oysters or milk containing the bacteria of typhoid fever; and (3) those in which bacteria have developed, producing either an infected mass, as in decomposed food, or a toxin.

The public at large seems loath to relinquish certain fixed ideas about food poisoning, founded though they are on conditions that ceased to exist years ago. It may be true that the food sold on American markets two decades ago was often contaminated with metals that might be toxic to human beings and with bacteria capable of producing severe cases of food poisoning. But with the continued enforcement of Federal, State, and city food laws, with the improved technic of manufacture made possible through advances in applied chemistry and bacteriology, and with the development of modern methods of refrigeration, contamination of foods with either poisonous metals or dangerous bacteria before they reach the ultimate consumer is almost entirely a thing of the past. Practically all of the food poisoning cases investigated during the last five years by the Food and Drug Administration have proved to be the result of carelessness on the part of those who prepared the food in the home or public kitchen.

### Contamination with Poisonous Metals

Nevertheless, the memory of the great hue and cry once raised over the incorporation of dangerous metals in certain foods during their manufacture remains to cast suspicion on foods or food ingredients when someone in the family shows symptoms of metallic poisoning. By and large, such suspicions are now quite unfounded. Modern American food manufacturers take great pains to use no metallic utensils that might be acted upon by the produce canned or otherwise prepared, nor do they consider for a moment the addition of a copper compound or any other questionable substance to change the aspect of their products.

To be sure, stories of arsenical poisoning are still blazoned forth in the daily press. The results of these cases are spectacularly apparent, but their causes are often shrouded in mystery that requires all



the food inspector's ingenuity as a detective to solve. Among the more notorious cases of this sort are the frequently-cited poisoned-sugar and poisoned-fruit-cake episodes.

The poisoned sugar, which killed two people and made thirty others violently ill, acquired its deadly load of arsenic in the local grocery store, where a clerk, through sheer inadvertence, emptied a package of arsenical rat poison into the sugar bin. This poison had been removed from the original tin container and, in the paper bag which was enclosed within the tin, placed on a shelf side by side with several bags outwardly the same but containing sugar instead of arsenic, sacked up from the bin for ready sale. As the sugar failed to sell as fast as had been anticipated and the bags began to look dirty and unsightly the clerk dumped their contents back into the bin, unfortunately taking the arsenical along with the rest.

### Accidental Poisoning

The nine poisoned fruit cakes that created a stir last Christmas probably owed their heavy seasoning with arsenic to the fact that a bag containing an insecticide had been left lying in the cellar within easy reach of the children of a woman who carried on a small local trade in baked goods. The true inside story of how the arsenic found its way into the flour bag will never be known, but all the clues indicate that one of the youngsters, wishing such a bag, emptied its contents, which looked like flour to him, into the flour bag in the pantry. The evil that might have arisen from this misdirected thrift was almost entirely averted by the prompt action of the Federal authorities, who retrieved seven cakes before they had even been cut. The consumption of part of the two other cakes made several people very ill indeed, and it was the prompt report of their illness that made it possible to obtain and destroy the seven dangerous cakes, one of which had

been shipped to Canada as a Christmas gift, before any further harm was done.

Another form of metallic contamination of food which has given the Food and Drug Administration some concern of late is that which may result from the use of poisonous sprays in controlling insect attacks on growing fruits and vegetables. Fortunately, the danger inherent in the sale of products not freed from excessive spray residue was recognized, and a campaign launched by Federal officials, with the active cooperation of local officials and the growers, led to the development and use of cleaning methods designed to cleanse the products before they reach the consumer.

### Poisoning from Bacteria-Infected Food

Epidemics of typhoid fever caused by eating oysters from polluted beds may be taken as typical of the second kind of food poisoning which the food and drugs act seeks to control. Scareheads in the daily papers setting forth the dire results of eating contaminated shellfish gave the industry as a whole a very unsavory reputation at one time. Accordingly, it bent every effort to cooperate with Federal, State, and local food and health officials to put an end to the taking of oysters from any waters that might be polluted by the sewage or factory wastes from adjacent towns. Oyster beds are now carefully patrolled and no cases of illness have been legitimately attributed to these shellfish for a long time. Modern science has done much to safeguard milk and water supplies, both by maintaining strictly sanitary conditions and by suitable treatment to kill any microorganisms that may be present, so that the spread of disease by these mediums has been reduced to a minimum.

Poisoning caused by the ingestion of food in which dangerous microorganisms have had an opportunity to develop, the third kind of poisoning here considered,

is more common than poisoning of either of the other two types. Time was when poisoning of this sort was known as "ptomaine" poisoning, the supposition being that deleterious chemicals, bearing the name "ptomaines," were formed in food under certain circumstances. This ptomaine theory was exploded long ago. It is bacteriological action, not chemical action, that produces in foods the changes that render them toxic to man.

Before the characteristics of the bacteria that cause food poisoning were fully understood the many cases of illness diagnosed as "ptomaine poisoning" were actually the result of the development of certain bacteria in foods, occasioned in large measure by ignorance of proper methods of preparation and preservation. Today, as the result of thorough scientific research and scrupulous care exercised by the average manufacturer to employ the most approved methods, few packages of food infected with harmful bacteria enter the channels of trade, and the small proportion that do are practically certain to be intercepted by Federal or State inspectors. As a consequence, the consumer has every reason to look with confidence in its wholesomeness upon the average American manufactured food product.

### **Government and Trade Cooperate**

This Utopian state has been attained by close cooperation between the industries concerned and the officials charged with the enforcement of pure food laws. Government inspectors constantly visit food factories from one end of the country to the other, ever on the look-out for faulty methods of procedure or insanitary conditions that would in all likelihood bring a product under the ban of the law as soon as it entered interstate commerce. Any flaw noted in the procedure is at once brought to the attention of the packer, who 99 out of 100 times immediately takes steps to remedy the defect. Notice of the hundredth manufacturer's failure to heed the inspector's warning is broadcast

to all the field stations of the Food and Drug Administration, which keep a careful watch for the finished potentially harmful product as it enters their territory, instituting court action when examination shows that it does not meet the requirements of the law. The bacteriologists on the staff of the Administration, from their never-ceasing study of methods for the prevention of the bacterial infection of foods, are frequently called on to solve various technical difficulties.

### **Food Poisoning Caused by Carelessness**

Why, then, is it that cases of food poisoning still crop up? The answer almost invariably is carelessness, pure and simple, in handling food after it has reached the ultimate consumer. For the bacteria that infect food are just as omnipresent as ever. Given a medium of growth to their liking, the necessary moisture, and a favorable temperature, they multiply rapidly, forming an infected mass which may or may not be apparent to the eye or nose. Meat, fish, and cream fillings for cakes and pies are particularly susceptible to bacterial contamination and are the cause of many of the gastro-intestinal disturbances laid at the door of food poisoning in the cases reported to the Food and Drug Administration in recent years.

For instance, within the last year or so, chicken patties upset 200 out of 600 people attending a luncheon and meat sandwiches poisoned about 300 people at a large picnic. Apparently the meat filling in neither case was contaminated when received by those who prepared the patties or the sandwiches. Investigation proved that the chicken filling was stored at room temperature for 24 hours before it was put into the patty shells and that the meat sandwiches were exposed for several hours to an outdoor temperature of 90°F. In both instances bacteria were supplied with the best possible conditions for their growth. Outbreaks of food poisoning at church suppers and at fairs, particularly in the rural districts,



can almost invariably be laid at the door of insufficient refrigeration. Who has not seen carefully prepared sandwiches stacked high to await the hour of the picnic, church supper, or fair? If the temperature happens to be one favorable to the growth of harmful bacteria, as it often is, the sandwiches may have become a distinct menace to health by the time they are eaten.

Custard and cream fillings also offer a fertile field for the growth of organisms hostile to man's digestive system, as shown by two comparatively recent outbreaks investigated by the Administration. In one, the illness of 150 people in a New England town was traced to contaminated chocolate pie and in the other the illness of 32 people in Kansas was found to have resulted from the consumption of bacteria-infected cream puffs. A check on conditions surrounding these two cases showed that the cooked filling that ultimately went into the pie had been held for some time at room temperature, which chanced to be 80° F., and that the custard mix inside the cream puffs had been kept so long that it became well infected with bacteria.

### **B. Botulinus Deadly**

Food poisoning of the most common type, that due to the activities of bacteria of the so-called Salmonella group, manifests itself by acute gastro-intestinal disturbances, with nausea, vomiting, and purging as the chief symptoms. Although of frequent occurrence, owing to failure to properly care for food in the home, food poisoning of this type is rarely fatal. Food poisoning due to another group of bacteria, the B. botulinus, however, has a high mortality. Such poisoning, called botulism, affects the central nervous system and death from it is due to suffocation. The bacilli of botulism get in their deadly work by producing a toxin in the food that serves as their host. These bacteria are widely scattered through the soil, which makes them an ever-present menace. The spores are extremely resistant to

heat but the toxin is destroyed by boiling for 20 to 30 minutes.

Sporadic cases of botulism continue to appear, making it necessary for food inspectors to be particularly vigilant in looking for products that may be contaminated in this way. The most recent outbreak of botulism followed the eating of canned shallots, or onions, imported from Italy. This was quickly traced to cans from a large consignment received at the port of New York. Food officials throughout the country were notified at once. The cooperative effort thus promptly made to run down every single can from this shipment resulted in the seizure and destruction of all the cans before any more fatalities occurred. No time can be lost in finding and removing the cause of botulism. Unfortunately the existence of food capable of causing this illness is not always discovered until someone has suffered ill effects from eating the poisoned food.

### **Consumers' Responsibilities**

Foods shipped within the jurisdiction of the Federal food and drugs act today are remarkably free from contamination with the poisonous metals and potentially harmful bacteria that made the consumers of 1910 view with alarm commercially prepared foods. No matter how free from such contamination a food is when it enters the home, however, improper storage in the pantry or careless handling in the kitchen may give rise to food poisoning. Unless all necessary precautions against contaminations are observed by those who prepare food in both private homes and public eating places what has been done to ensure safe foods up to that point goes for naught.

Manufacturers and large dealers have familiarized themselves with the idiosyncrasies of bacteria and adapted their methods of production and handling to



prevent bacterial growth, the most common cause of food poisoning. Not all cooks, however, seem to have kept pace with the manufacturers in this respect, for foods are still kept under conditions that offer dangerous bacteria every opportunity for development. Dust, dirt, or vermin, which carry bacteria, are permitted to come in contact with food. Products known to offer a suitable medium for the growth of bacteria are stored at a temperature favorable for such growth. Here are a few suggestions prepared by specialists in the Bureau of Home Economics, for the ultimate consumer, which, if generally followed, would cut down materially the number of food poisoning mysteries from time to time brought to food officials for solution.

(1) Keep foods free from dirt and from insects or other carriers of microorganisms.

(2) See that all food to be eaten raw is fresh, clean, and sound, and free from stale odors, from slimy, rotting areas, and from mold. Fresh vegetables and fruits and other foods to be eaten raw should be carefully and thoroughly washed in pure water before they go onto the table.

(3) Serve cooked food as soon after it is prepared as possible.

(4) Do not expose moist or soft cooked food to a temperature above 50° F. for more than a few hours. Keep it in the refrigerator. If no refrigerator is available, recook the food before serving it, even if it shows no signs of spoilage. Most dangerous bacteria that infect foodstuffs succumb when the food is brought to the boiling point and the toxin produced by *B. botulinus* is rendered innocuous by boiling for 20 to 30 minutes.

(5) Never take a chance on any food with an unusual smell or appearance. "Your nose knows" and fail-

ure to heed signs of food contamination may be attended by serious consequences.

No system of inspection is infallible, of course, and consumers can further safeguard themselves against botulism, the most serious form of food poisoning, by continuing for themselves the inspection begun by manufacturers and food inspectors. Production of toxin by botulism bacteria is usually accompanied by spoilage of the food and this spoilage is evident in bad odor, gas formation, or cloudiness of the liquid. Swelling of the container likewise is a danger signal. Food from cans showing springing, flipping, or swelled lids should never be eaten. In fact, such cans should be called to the attention of food officials, either Federal or local. Food from glass jars showing leaks around the rubber rings, cloudiness of the liquid, or spurting of the contents when the bottle is opened is best thrown away, without tasting. Tasting preserved foods that look at all doubtful may prove disastrous. If questionable food must be eaten, a wise precaution is to boil it for 20 to 30 minutes just before serving.

The home canner can avoid danger from botulism by following five fundamental rules:

(1) Use only clean, sound raw materials.

(2) Follow the most recent instructions for processing, making sure that this instruction applies at the altitude of the place where the canning is done. The Bureau of Home Economics of the U. S. Department of Agriculture issues rules for home canning based on the most recent scientific research. These rules may be had for the asking.

(3) Discard all defective cans and glass containers.

(4) Carefully examine all foods for signs of spoilage.

(5) Throw away, untasted, all food showing signs of spoilage.

Federal, State, and city food officials, so far as it is humanly possible to do so, see that all food and food ingredients sold in the United States are entirely fit for consumption. Many foods actually and potentially harmful have been removed from the market by these officials. To stamp out food poisoning entirely, however, the ultimate consumer, particularly the individual preparing food in the kitchen, must take up the work where the Federal Government, the States, and the cities leave it. If each person preparing food for the table would follow the fundamental rules here outlined and remember that sound food freshly and thoroughly cooked does not cause food poisoning, outbreaks of such illness should cease.









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